

Managing Users and Groups

What You Will Learn

- How to manage users and groups.
- Where user and group information lives.
- How to add, delete, and change users and groups.

Accounts have a:

- Username (or login ID).
- UID (user ID). This is a unique number.
- Default group.
- Comments.
- Shell.
- Home directory location.

/etc/passwd

```
root:x:0:0:root:/root:/bin/bash
```

The format of the /etc/passwd:

```
username:password:UID:GID:comments:  
home_dir:shell
```

/etc/passwd

```
joe:x:1000:1000:Joe Henderson:/home/joe:/bin/bash
```

The format of the /etc/passwd:

```
username:password:UID:GID:comments:  
home_dir:shell
```

Custom for usernames < 8 characters.

```
$ ps -fu joehenderson
```

UID	PID	PPID	C	STIME	TTY	TIME	CMD
joehend+	1182	1181	0	22:48	pts/1	00:00:00	-bash

OR

```
$ ps -fu joehenderson
```

UID	PID	PPID	C	STIME	TTY	TIME	CMD
1000	1182	1181	0	22:48	pts/1	00	

Username

- Less than 8 characters in length by convention.
- Case sensitive.
- In all lowercase by convention.
- Numbers are allowed in usernames.
- Do not use special characters.

Passwords are stored in /etc/shadow

- Encrypted password used to be stored in /etc/passwd.
- /etc/passwd is readable by everyone.
- Now, encrypted passwords are stored in /etc/shadow.
- /etc/shadow is only readable by root.
- Prevents users trying to crack passwords.

UIDs

- The root account is always UID 0.
- UIDs are unique numbers.
- System accounts have UIDs < 1000.
 - Configured in /etc/login.defs

GID

- The GID listed in the `/etc/passwd` for is the default group for an account.
- New files belong to a user's default group.
- Users can switch groups by using the **newgrp** command.

Comment Field

- Typically contains the user's full name.
- In the case of a system or application account, it often contains what the account is used for.
- May contain additional information like a phone number.
- Also called the GECOS field.

Home Directory

- Upon login the user is placed in their home directory.
- If that directory doesn't exist, they are placed in "/".

Shell

- The shell will be executed when a user logs in.
- A list of available shells are in `/etc/shells`.
- The shell doesn't have to be a shell.
- To prevent interactive use of an account, use **`/usr/sbin/nologin`** or **`/bin/false`** as the shell.
- Shells can be command line applications.

/etc/shadow

```
root:$6$9g1IC8AYzqoZP21:16502:0:99999:7:::
```

useradd

useradd [options] username

- | | |
|----------------|-------------------------------|
| -c "COMMENT" | Comments for the account. |
| -m | Create the home directory. |
| -s /shell/path | The path to the user's shell. |

useradd

```
useradd -c "Grant Stewart" -m  
-s /bin/bash grant
```

Note: This is one command line. It's displayed on multiple lines for readability.

```
useradd -c "Grant Stewart" -m -s /bin/bash grant
```


Create a password using passwd

```
# passwd grant
```

```
Enter new UNIX password:
```

```
Retype new UNIX password:
```

```
passwd: password updated  
successfully
```

```
#
```

Account information for "grant"

```
# tail -1 /etc/passwd
```

```
grant:x:1000:1000:Grant Stewart:/home/grant  
:/bin/bash
```

```
# tail -1 /etc/shadow
```

```
grant:$6$iDDsgsPYtR8c2Uc.:16507:0:99999:7:::
```

More useradd options

- g GROUP Specify the default group.
- G GROUP1,GROUPN Additional groups.

useradd

```
# useradd -c "Eddie Harris" -m -s  
/bin/bash -g sales -G projectx  
eharris
```

```
# passwd eharris
```

```
Enter new UNIX password:
```

```
Retype new UNIX password:
```

```
passwd: password updated successfully
```

```
#
```

System or ApplicationAccounts

```
# useradd -c "Apache Web Server
User" -d /opt/apache -r -s
/usr/sbin/nologin apache
# tail -1 /etc/passwd
apache:x:999:999:Apache Web Server
User:/opt/apache:/usr/sbin/nologin
#
```

/etc/skel

- When using -m the home directory for the account is created.
- The contents of /etc/skel are copied into the home directory.
- /etc/skel typically contains shell configuration files. (.profile, .bashrc, etc)

More useradd options

- r Create a system account.
- d /home/dir Specify the home directory.

Use -u to specify the UID

```
# useradd -c "MySQL Server" -d  
/opt/mysql -u 97 -s /usr/sbin/nologin  
mysql  
# tail -1 /etc/passwd  
mysql:x:97:1003:MySQL Server:  
/opt/mysql:/usr/sbin/nologin  
#
```


userdel [-r] username

```
# ls /home
```

```
eharris grant
```

```
# userdel eharris
```

```
# ls /home
```

```
eharris grant
```

```
# userdel -r grant
```

```
# ls /home
```

```
eharris
```

usermod

```
usermod [ options ] username
```

- | | |
|------------------|---------------------------|
| -c "COMMENT" | Comments account. |
| -g GROUP | Specify the defaultgroup. |
| -G GROUP1,GROUPN | Additional groups. |
| -s /shell/path | Path to the user's shell. |

usermod

```
# grep mysql /etc/passwd
mysql:x:97:1003:MySQL Server:
/opt/mysql:/usr/sbin/nologin
# usermod -c "MySQL User" mysql
# grep mysql /etc/passwd
mysql:x:97:1003:MySQL User:
/opt/mysql:/usr/sbin/nologin
```

/etc/group

```
root:x:0:
```

```
sales:x:1001:john,mary
```

The format of the /etc/group file:

```
group_name:password:GID:account1,accountN
```

groups [username]

groups root

root

groupadd [options] group_name

```
# groupadd web
```

```
# tail -1 /etc/group
```

```
web:x:1003:
```

```
# groupadd -g 2500 db
```

```
# tail -1 /etc/group
```

```
db:x:2500:
```

```
#
```

groupdel group_name

```
# groupdel db
```

```
#
```

groupmod

```
groupmod [options] group_name
```

-g GID

Change the group ID to GID.

-n GROUP

Rename the group to GROUP.

groupmod

```
# grep web /etc/group
```

```
web:x:1003:
```

```
# groupmod -g 1234 web
```

```
# grep web /etc/group
```

```
web:x:1234:
```

```
# groupmod -n http web
```

```
# grep http /etc/group
```

```
http:x:1234:
```

Demonstration

- Create the following groups
 - writers
 - tv
 - movie
- Create user accounts
 - All users will have the default group of writers.
 - Some will also be in the tv group.
 - Others will be in the movie group.

Summary

- Account information is stored in:
 - `/etc/passwd` and `/etc/shadow`
- Accounts have the following attributes:
 - username
 - UID
 - GID (default group)
 - Comment
 - home directory
 - shell

Summary

- Create accounts with `useradd`.
- Delete accounts with `userdel`.
- Modify accounts with `usermod`.

Summary

- Group information is stored in `/etc/group`.
- Create groups with `groupadd`.
- Delete groups with `groupdel`.
- Modify groups with `groupmod`.
- To view group memberships use `groups`.